

# CLAIMS

What is claimed is:

1           1.     A method for validating network configuration change  
2     commands in a distributed network environment, comprising:  
3                 providing a change command to a network management  
4                 device residing in the network, the change command expresses  
5                 a change to the configuration of the network and implicitly  
6                 indicates an initial configuration state of the network;  
7                 determining a current configuration state of the network;  
8                 and  
9                 implementing the change command when the change  
10                command is expressed in terms of the current configuration  
11                state of the network.

1           2.     The method of Claim 1 wherein the step of determining a  
2     current configuration state of the network further comprises accessing  
3     a virtual representation of the network configuration.

1           3.     The method of Claim 1 wherein the step of implementing  
2     the change command further comprises comparing the initial  
3     configuration state indicated by the change command to the current  
4     configuration state of the network; and implementing the change  
5     command when the initial configuration state indicated by the change  
6     command correlates to the current configuration state of the network.

1           4.     The method of Claim 3 further comprising the step of  
2     disregarding the change command as being an invalid request when  
3     the initial configuration state indicated by the change command does  
4     not correlate to the current configuration state of the network.

1           5.     The method of Claim 1 wherein the change command is  
2     further defined as an assign command that establishes an association  
3     between a storage unit to a storage server, where the assign command  
4     implicitly indicates that the storage unit is currently not assigned within  
5     the network.

1           6.     The method of Claim 1 wherein the change command is  
2     further defined as an unassign command that disassociates a storage  
3     unit from a storage server, where the unassign command implicitly  
4     indicates that the storage unit is currently assigned within the network.

1           7.     A method for validating storage allocation commands in a  
2     storage area network, comprising:

3                 providing a storage allocation command to a network  
4     management device residing in the network, the storage  
5     allocation command expresses a change to the configuration of  
6     storage resources and implicitly indicates an initial configuration  
7     state of the storage resources in the network;

8                 determining a current configuration state of the storage  
9     resources in the network;

10 determining if the storage allocation command is  
11 expressed in terms of the current configuration state of the  
12 network; and

13 implementing the storage allocation command when the  
14 storage allocation command is expressed in terms of the current  
15 configuration state of the network.

1 8. The method of Claim 7 further comprising the step of  
2 disregarding the storage allocation command as being an invalid  
3 request when the storage allocation command is not expressed in  
4 terms of the current configuration state of the network.

1 9. The method of Claim 7 further comprising:  
2 providing an assign command to the network  
3 management device, where the assign command establishes an  
4 association between a storage unit to a storage server, thereby  
5 granting the storage server read-write access to the storage  
6 unit;

7 determining if the storage unit is currently assigned in the  
8 network; and

9 implementing the assign command when the storage unit  
10 is currently unassigned in the network.  
11

1           10.    The method of Claim 7 further comprising:  
 2                    providing an unassign command to the network  
 3           management device, where the unassign command  
 4           disassociates a storage unit from a storage server;  
 5                    determining if the storage unit is currently assigned in the  
 6           network; and  
 7                    implementing the unassign command when the storage  
 8           unit is currently assigned in the network.

1           11.    The method of Claim 7 wherein the storage allocation  
 2           command is selected for the group consisting of: assigning a storage  
 3           unit to a storage server; assigning a storage unit to a shared group;  
 4           and assigning a storage unit to an associated LUN group.

1           12.    The method of Claim 11 wherein the storage allocation  
 2           command implicitly indicates that the storage unit is not currently  
 3           assigned to either a storage server or an associated LUN group and is  
 4           not currently grouped in a shared group.

1           13.    The method of Claim 11 further comprising:  
 2                    determining if the storage unit is currently assigned in the  
 3           network;  
 4                    determining if the storage unit is currently grouped in the  
 5           network; and

6 implementing the storage allocation command when the  
7 storage unit is currently not assigned and not grouped in the  
8 network.

1 14. The method of Claim 7 wherein the storage allocation  
2 command is selected for the group consisting of: assigning an  
3 associated LUN group to a storage server; assigning an associated  
4 LUN group to a shared group; and assigning a storage server to a  
5 shared group.

1 15. The method of Claim 14 wherein the storage allocation  
2 command implicitly indicates that each storage unit implicated by the  
3 command is associated with at least one of an associated LUN group  
4 and a shared group.

1 16. The method of Claim 14 further comprising:  
2 determining each storage unit associated with at least  
3 one of the associated LUN group and the shared group;  
4 determining if each storage unit is currently grouped in  
5 the network; and  
6 implementing the storage allocation command when each  
7 of the storage units is currently grouped in the network.